Existing Systems Approval (ESA)

General Information and Workbook Instructions

A workbook approach for Group A Public Water Systems to submit Existing System Approval information

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General ESA Information

Background

Existing System Approval (ESA) is an evaluation and approval method used by the Washington State Department of Health (DOH) to evaluate existing non-expanding Group A Public Water Systems for approval status. Following ESA evaluation and approval, operating permit rules are used to identify the proper operating permit color designation. The ESA will define the number of approved connections in the following categories:

- Residential connections,
- Recreational connections,
- Other non-residential connections, and
- Total connections.

The overall intent of an ESA evaluation is to allow existing unapproved and non-expanding Group A water systems to obtain approval with a minimum amount of effort, while assuring that critical public health requirements have been achieved.

Authority

The authority to issue ESA approvals is in WAC 246-290-140, which establishes the minimum requirements that must be evaluated to receive approval. The ESA workbook is intended to provide a format and process to meet the intent of WAC 246-290-140.

The authority to issue operating permits is in chapter 246-294 WAC. The authority to charge fees is in WAC 246-290-990.

Purveyor Responsibilities

Water system purveyors are responsible for:

- Applying for (requesting) ESA approval;
- Obtaining a Sanitary Survey inspection of their water system and correcting noted deficiencies;
- Preparing and submitting an ESA workbook;
- Making required water system upgrades.

ESA Applicability

The ESA evaluation and approval process is applicable only to water systems that existed before April 9, 1999. Wells and distribution facilities constructed after April 9, 1999 are not eligible for an ESA.

ESA is limited to the existing number of connections. Additional connections (expansions or infill) will not be allowed as part of the ESA.

DOH regional staff will determine if an ESA evaluation and approval is applicable, review the completed ESA workbook, establish the water system-specific regulatory requirements for water system approval, and instruct purveyors on the appropriate approval steps and requirements.

When a Professional Engineer is required

Most ESA applicants will be able to complete the ESA process without having to rely upon the services of a Professional Engineer (PE).

A PE will be required to prepare the ESA documents if:

- The system has more than 100 residential connections (for community water systems);
- The system has more than 25,000 gallons average daily demand (ADD) (for non-community water systems);
- The system uses sources designated as surface water or ground water under the direct influence of surface water (GWI));
- The system supplies water for fire fighting purposes; or
- A source has complex treatment processes such as filtration, ion-exchange, reverse osmosis, or others as determined by DOH. Note: The need for a PE when the source is treated for secondary contaminants will be determined on a caseby-case basis. Water softening for iron and manganese is not considered complex treatment.

The <u>water system owner</u> is responsible for the submittal of the ESA documents regardless who prepares them (the purveyor, a PE, the system manager, etc).

ESA Fees

ESA review fees will be based upon the hourly plan review fee defined by WAC 246-290-990. The hourly fee rate will apply to time DOH spent reviewing ESA submittal materials. Hourly fees will not apply to the time DOH staff spend providing technical assistance to ESA applicants. Hourly fees will not apply to time DOH staff spend conducting sanitary surveys or research on individual systems.

If a sanitary survey is required, a fee defined by WAC 246-290-990 will also apply if a DOH inspector conducts the sanitary survey. If a Local Health Jurisdiction conducts the sanitary survey, a locally administered fee may apply.

If additional Project Reports or Construction Document Reviews are needed to accomplish an ESA evaluation and approval, separate fees will be charged for review and approval of those additional actions.

DOH will bill the purveyor when the ESA review comments are provided to the purveyor.

Drinking Water Regional Offices

• Eastern Regional Office (Spokane) – (509) 456-3115

Adams, Asotin, Benton, Chelan, Columbia, Douglas, Ferry, Franklin, Garfield, Grant, Kittitas, Klickitat, Lincoln, Okanogan, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman, and Yakima counties

- Northwest Regional Office (Kent) (253) 395-6750
 Island, King, Pierce, San Juan, Skagit, Snohomish, and Whatcom counties
- Southwest Regional Office (Olympia) (360) 664-0768

Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Kitsap, Lewis, Mason, Pacific, Skamania, Thurston, and Wahkiakum counties

Drinking Water Operator Certification Program

- (360) 236-3145
- Toll free 1-800-525-2536, ext. 5

Ecology Regional Offices

- Southwest Regional Office (Olympia) (360) 407-6300
 - Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Pierce, Thurston, Skamania, and Wahkiakum Counties
- Northwest Regional Office (Bellevue)– (425) 649-7000

Island, King, Kitsap, San Juan, Skagit, Snohomish, and Whatcom Counties

• Central Regional Office (Yakima) – (509) 575-2491

Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, and Yakima Counties

• Eastern Regional Office (Spokane)– (509) 329-3400

Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, and Whitman Counties

Technical Assistance

Even though the ESA materials are intended for use by a layperson, many elements may be difficult to understand and complete. An ESA applicant should consider seeking technical assistance from a professional person who knows about drinking water system design, operation, and management. Options to consider include:

- A Qualified Sanitary Surveyor (QSS);
- A professional organization such as the Evergreen Rural Water Association of Washington (ERWOW) or the Rural Community Assistance Corporation (RCAC); or
- An individual technical service provider under contract with DOH.

Anyone preparing an ESA submittal and desiring to obtain technical assistance should contact the Office of Drinking Water in his or her area. Regional staff will be able to help match the need for technical assistance with locally available technical assistance providers.

Other documents you will need

In addition to this set of instructions, you should have available the following documents provided by the Office of Drinking Water:

- Existing System Approval: Workbook (DOH publication #331-244)
- Preparation of a Coliform Monitoring Plan for Group A Public Water Systems (DOH publication #331-036)
- Preparation of a Coliform Monitoring Plan for the Small Non-Community Water System (DOH publication #331-240)
- Preparing for a Sanitary Survey: Information to Help Small Water Systems (DOH publication #331-238)
- Sanitary Surveys of Drinking Water Systems (DOH publication #331-197)
- Water Facility Inventory (WFI) instructions
- Formulas and conversion factors

ESA Workbook Instructions

The ESA workbook consists of an owner's statement and 12 separate elements. The following instructions explain how to complete each of them.

The ESA workbook and Instructions are 3-hole punched. You should keep all of the ESA materials in a 3-ring binder. Complete all items in the workbook. If an item does not apply to your situation, write "NA".

Owner's Statement and Background Information

The owner's statement serves as a reminder to water system owners that unapproved public water systems are not authorized to expand or add additional connections.

The background information will be used by DOH to verify proper addresses and contact information for the owner and the person who prepares the ESA submittal.

Sign and date the owner's statement. Provide the requested address, phone, fax, and email information.

Element 1 – Water Facility Inventory (WFI) Update

Provide an updated, signed, and dated WFI. A copy of the instructions for updating the WFI are enclosed in the ESA packet. A copy of your current WFI form can be obtained from the DOH Regional Office for your county.

Review each box or field on the completed WFI form. Edit or revise the WFI to provide the most accurate information possible. Refer to the detailed WFI instructions if you have questions. Help with the WFI form is available from your DOH Regional Office.

Note: an updated WFI will be required in order to obtain an ESA.

Element 2 – Basic Water System Information

Provide water system information as noted in the workbook. If an item is not applicable, write "NA".

- Item 1: Consult your WFI to determine the type of water system and check the appropriate box.
- Item 2: Indicate the date your water system was constructed. If the construction occurred over an extended period, indicate when the first user was able to obtain drinking water.

- Item 3: Enter the name of the person or organization that is the legal owner of the water system. If the owner is an organization, an individual must be listed as the owner contact.
- Item 4: Review the information provided to you by the DOH Regional Office to determine if you are required to have a certified operator. If the DOH Regional Office has not provided this information, contact the DOH Operator Certification Program. If you are required to have a certified operator, enter the name of the certified operator responsible for the day-to-day operations of the water system. If you are not required to have a certified operator, check the NA box. Normally all Group A Community, Group A Non-transient Non-community (NTNC), and some Group A Transient Non-community (TNC) systems are required to have a certified operator.
- Item 5: Enter emergency contact information.
- Item 6: Estimate how much water your water system uses on an average day (ADD) and on the highest demand day of the year (MDD). Estimates may be based upon data from source meters, tank depth measurement changes, electricity use, or other methods.
 - Indicate if you have a source meter.
 - Indicate if you have recorded source meter information and at what frequency (daily, monthly, etc.).
 - Explain how you determined the ADD.
 - Explain how you determined the MDD.
- Item 7: Contact the local fire authority to determine if a fire flow requirement has been established for your water system. If it has, a Professional Engineer must conduct a hydraulic analysis of your system and your system may not be eligible for an ESA. You should contact the appropriate DOH Regional Office to determine if a Professional Engineer will be required to complete the ESA application.
- Item 8: List and describe any water treatment that has been installed. If complex water treatment facilities have been installed, a Professional Engineer must evaluate the design and operation of the water treatment facilities. Your system may not be eligible for an ESA. You should contact the appropriate DOH Regional Office to determine if a Professional Engineer will be required to complete the ESA application.

Note: The need for a PE when the source is treated for secondary contaminants will be determined on a case-by-case basis. Water softening for iron and manganese is not considered complex treatment.

Element 3 – Existing System Layout & Map

A map that identifies the location of facilities will be helpful to system personnel and DOH. The map can be used when making repairs, troubleshooting problems, and determining where to collect bacteriological samples.

Step 1. Obtain a copy of your system map. The final engineering documents or "asbuilt drawings" should have included a map of the system. You can use these documents to create system layout and facility map.

If you do not have a system map prepared by an engineer, you can use a street map. It is in your best interest, however, to obtain a more detailed map of the system at the first opportunity. Your local county planning department or assessor's office may be a source for a detailed area map.

Step 2. Draw in the existing lines and connections.

NOTE: If you propose to extend distribution lines into new areas or connect additional customers to existing lines, your system is considered an expanding system. Expanding systems are not eligible for an Existing System Approval. Expanding community water systems must complete a Water System Plan, pursuant to WAC 246-290-100, before expanding. Expanding non-community water systems must submit engineering documents before expanding. If there are plans to expand your system, contact the appropriate DOH Regional Office to discuss the type of planning document required.

Step 3.	Draw in the location of the facilities listed below. If your system does not have a particular type of facility such as booster pumps, write in NA (i.e., not applicable):				
	Sources (well name, DOH source #)	Storage facilities			
	Treatment facilities with capacities	Pressure zones			
	Hydrant	Booster pumps			
	Service connections	Sampling points			
	Distribution lines				
	Valves				

Step 4. Make a copy of the existing system layout and map and include it with the rest of the ESA Workbook documentation for your system. Keep the originals for your files and use.

Element 4 – Operations and Maintenance (O&M) Program

Complete the workbook tables and describe operations and maintenance (O&M) activities. The list of activities includes procedures for start-up, shutdown, flushing lines, cleaning reservoirs, collection of water quality samples, descriptions of the primary equipment, maintenance frequencies and service contacts for the primary equipment, and any other significant information needed to operate the water system.

If the information requested below is available in an existing document, skip the steps below and attach a copy of the existing document to the ESA Workbook.

- Step 1 Fill in the information about the water system O&M personnel (name, title, operator certification number, and phone number).
- Step 2 Document the current O&M functions and how frequently (daily, weekly, monthly, seasonally, etc.) they are performed.
- Step 3 Develop a list of supplies that you will need to periodically order and include the name and phone number of the person to contact for the supplies. For example, if you chlorinate using hypochlorite; then you should note where you obtain or order your chlorine solution.

Element 5 – Water Rights Documentation (applies to ground water sources only)

A water right is a legal document or series of documents issued by the Washington State Department of Ecology (Ecology). Water right documents specify the total annual amount of water that can be used, the maximum allowable pumping rate, and the allowable place of use.

RCW 90.44.050 specifies when a well must have a water right permit. Public water systems that have groundwater wells and use 5,000 or more gallons per day on high demand days are required to have water right. The specific legal requirements can be found at:

http://www.leg.wa.gov/RCW/index.cfm?fuseaction=section§ion=90.44.050

The information you provide in the ESA workbook is intended to describe the current water rights that apply to your water system. If you do not have a water right permit, or if you conclude that your water rights are inadequate, you will be required to apply to Ecology for new or amended water rights. Existing System Approval will not be withheld due to a lack of resolution of water right inadequacies.

- Item 1: Indicate if your water system is required to have a water right. If the water system has used at least 5,000 gallons/day on a peak day, then a water right is required. Your response should be consistent with your determination of MDD (see Element 2, item 6).
- Item 2: Explain why you do not believe your system is required to have a water right.
- Item 3: Obtain copies of your water right documentation and attach copies (certificates, permits, applications, reports of examinations, claims agreements, reports, letters from Ecology, etc) to your ESA Workbook. If you do not have copies of the water system's water right documentation, contact the appropriate Ecology regional office to obtain copies. The Ecology regional office will ask for the source's section, township, and range. This information can be found on your WFI. If this information is not on the WFI, contact your county tax assessor's office for help.
- Item 4: If you have water right documentation, complete the Water Right and Water Use Table. Examine your water rights documents and enter the instantaneous and annual withdrawal limits value into the Water Right and Water Use Table. Fill in the information for each of the water system's sources (including permanent, seasonal and emergency sources). The Source ID # is the DOH ID# on the WFI form.
- Item 5: Determine if the installed source pumping rate (from Element 9, item 1) is less than or equal to the instantaneous withdrawal limit specified on your water right. Compare the installed pumping rate measured in gallons/minute with the instantaneous withdrawal limit on the water right. If the installed pumping rate exceeds the permitted instantaneous withdrawal rate, the water rights are considered to be inadequate.
- Item 6: Determine if the annual water use is less than the annual water use specified on your water right. You must convert the average day demand (ADD) (see Element 2, item 6) to acre-feet/year and compare this value with the annual withdrawal limit specified on your water right. Use this formula to convert ADD to acre-ft/year:

ADD (gallons/day) $\times 0.00112014 = \underline{\hspace{1cm}}$ acre-ft/year

If the actual annual water use exceeds the permitted annual water, the water rights are considered to be inadequate.

Item 7: If your system does not have water rights (or the water rights appear inadequate), complete and submit an application for water rights to your Ecology regional office. ESA approval will be withheld until you are able to show that an application for water rights has been received by Ecology. A copy of your application to Ecology will be considered to be proof of application for water rights.

Element 6 – Coliform Monitoring Plan (CMP)

Provide a written Coliform Monitoring Plan (CMP) that shows your monitoring schedule and sampling locations on a service area map.

The DOH guidance document "Preparation of a Coliform Monitoring Plan For Group A Public Water Systems" provides detailed instructions for the preparation of a Coliform Monitoring Plan.

- Step 1. Review the Coliform Monitoring Plan (CMP) guidance.
- Step 2. Take the blank forms from this guidance document and complete them like the example, but for the specific conditions for your water system. Be sure to attach a distribution system map with the monitoring locations identified with code numbers that relate to the scheduling information in the forms. Be certain that the number of coliform samples described in the CMP agrees with or exceeds the number of coliform samples printed on your WFI.
- Step 3. Attach the completed Coliform Monitoring Plan (CMP) form and map to the ESA workbook.

Element 7 – Water Quality Monitoring Information

Initial Water Quality Monitoring required for source approval: DOH requires that all sources of drinking water comply with applicable water quality standards. DOH will review the water quality records on file and tell you what initial and routine water quality monitoring requirements apply to your system. Initial source monitoring requirements for your system will be included in the ESA application packet DOH gives you.

Ongoing source and distribution water quality monitoring requirements: DOH requires that drinking water be monitored on a regular basis. The testing requirements are different for the various types of systems (Group A community, Group A NTNC, Group A TNC). DOH will tell you what ongoing water quality monitoring requirements apply to your system at the time of ESA review or ESA approval. Community water systems will be provided with a Water Quality Monitoring Report (WQMR). The WQMR will explain what source and distribution monitoring requirements apply to your system for the current year. Noncommunity water systems will be provided with a customized monitoring schedule.

Element 8 – Sanitary Survey Inspection and Follow-up Corrections

If a sanitary survey has been conducted on your system within the past five years, provide documentation that any problems noted in the survey findings have been corrected.

If your system has not had a sanitary survey in the past five years, contact DOH to schedule one. A DOH fact sheet, *Sanitary Surveys of Drinking Water Systems* (DOH publication #331-197) has been included with the ESA Instructions.

Contact the appropriate DOH Regional Office to obtain a copy of your most recent sanitary survey if you do not already have one. Attach a copy of the sanitary survey inspection report to the ESA workbook. Correction of deficiencies can be demonstrated through another inspection or by submittal of documentation such as contractor bills, photos, and written explanations.

Element 9 – Adequate Pressure and Water Availability

All systems seeking an ESA must demonstrate there is adequate pressure to serve all service connections with at least 20-psi (pounds per square inch) gauge pressure under peak flows. You must analyze the adequacy of pressure and water availability by recording pressure gauge readings under actual or simulated peak flow conditions.

- Item 1: Select the method you will follow to demonstrate adequate water pressure and availability.
- Item 2: Provide information about the installed well pump(s). A pump curve is a graph prepared by the pump manufacturer. Contact the pump manufacturer or the local pump installer to obtain a pump curve for the model of pump that has been installed in your well.
- Item 3: Provide a narrative description of the pressure zones for your distribution system. A pressure zone is a portion of the distribution piping that is pressurized by either a well/pressure tank, a booster pump supplied by a storage tank, or a gravity storage tank. Distribution systems constructed on flat terrain and limited to short runs of distribution piping normally have a single pressure zone. Distribution systems with large variations in elevation and long runs of distribution piping may be dividing into two or more pressure zones. For each pressure zone, explain or describe the means of pressurization (e.g. well/pressure tank; gravity storage; booster pump/pressure tank, etc).
- Item 4: Provide information about the pressure tanks, if any, which have been installed on your system. A pressure switch normally controls the operating pressure range. The easiest method to determine the operating pressure range

is to read a pressure gauge located near the pressure tanks. Record the operating pressure range for the system by noting the "pump-on" and "pump-off" pressure settings. Record the information as 30/50, 40/60, 50/70, etc. or whatever pressure range applies to your system.

Item 5. If you opted to collect pressure readings in order to demonstrate adequate pressure and water availability; then you should complete Item 5. Pressure gauges can be borrowed from DOH Regional Offices and many local health departments. Ideally, pressure reading would be taken at multiple points in the distribution system (the location most distant from the source of pressure, at high points in the system, the site with the greatest water demand, and other representative points) under peak demand periods. If it is not practical to collect pressure readings during high demand periods, then you should simulate peak demand flows by opening hydrants, blow offs, etc. in order to duplicate peak demand flows.

Record water pressure readings.

Explain where the pressure measurements were taken and explain why you selected these sample sites. Explain how you simulated peak flow conditions.

Item 6: Indicate if the water system is able to provide 20 psi to all service connections under peak flow conditions. Sign and date the statement.

Element 10 – Inventory of Potential Sources of Well Contamination and Confined Aquifer Determination.

Provide DOH with an inventory of potential sources of well contamination by completing the Potential Source of Contamination worksheet. If you rely on more than one well, complete an item 10 worksheet for each well. You should list all potential sources of contamination located within 100 feet of your wells. Your list should include potential sources of contamination located on property under the control of the water system and on property not under the control of the water system. DOH will use this information to determine if special precautions will be required to protect your well from possible contamination.

Provide DOH with information concerning your well depth, well construction, depth to static water level, and geology. DOH will use this information to determine if your well is susceptible to potential sources of contamination. If you do not have a well log for your source(s); then DOH may require appropriate mitigation such as extra water quality monitoring or source disinfection.

- Item 1: Source Name: Write down the name of the well from the WFI.
- Item 2: Source ID #: Write down the source ID # listed on the WFI. Do NOT change the WFI source ID #. DOH assigns source ID #'s.

- Item 3: Type of Source: Check the box that best describes your source. The choices are:
 - Permanent Source: The permanent sources are the wells that are typically in use.
 - Seasonal Well: A seasonal well is used for a portion of the year, but is not considered your permanent source. For example, if your permanent source loses capacity (usually during late summer or early fall) and you turn on another well, then the second well is called a seasonal well.
 - Emergency Well: An emergency well is used when your system experiences a true emergency like a pump failure. Emergency wells are not physically connected to your system during normal operation.
- Item 4: Complete the Potential Source of Contamination Worksheet.
 - Emergency Well: An emergency well is used when your system experiences a true emergency like a pump failure. Emergency wells are not normally physically connected to your system.
- Item 5: Well Report: A well report could be a driller's log, well log, or a detailed design that includes an engineer's "as built" along with a geologic log. Ecology is the agency that maintains well logs (if the driller filed the log with them and if the well was drilled after 1973). If you can not locate a well log for your well, you will not be able to complete Items 6-9.
- Item 6: Surface Seal: Installation of a surface seal should be indicated under "Construction Details" on the well report. The surface seal of a well commonly extends some distance down the annular space (the space between the well casing and the borehole wall) to protect the well from direct infiltration of surface contaminants. Please indicate if your well was constructed with at least 18 feet of cement, bentonite, or grout seal below ground surface.
- Item 7: Depth of Well Screens. The well report should indicate the depth of well screens or well casing perforations. Determine if the depth is greater than 50 feet from the top of the casing.
- Item 8: Confined Aquifer Worksheet: Directions are on the worksheet.
- Item 9: Determine if the well withdraws water from a confined aquifer: The Confined Aquifer Worksheet must be completed in order to answer this item. A confined aquifer is considered not to be susceptible to potential sources of contamination located above ground.

Element 11 – Distribution System Description & Assessment

Provide information regarding the distribution system piping.

- Item 1: Summarize the general distribution system characteristics such as pipe sizes, material, and age.
- Item 2: Summarize areas of known physical problems and describe your pipe replacement and lead repair program.

Element 12 – Storage Facility Description and Assessment

Provide information on storage facilities (overflows, drains, hatches, vents, conditions, etc.), and identify any potential pathways of contamination.

Demonstrate (provide copies of photos, receipts, sanitary survey reports, or other written certifications) that contamination pathways have been eliminated to the satisfaction of DOH.

- Item 1: Check the boxes that apply.
- Item 2: List the storage volume and explain how the storage volume was determined.
- Item 3: Check the boxes that apply.
- Item 4: Indicate if the storage tank can be valved off from the system. If you answered "no", then you should give serious consideration to installing a valve or valves to do this.
- Item 5: Indicate if there are openings in the tank that could allow insects, birds, mice, etc into the tank. If you answered "yes", then provide evidence the opening(s) have been properly screened or sealed. You will not receive approval until the openings have been properly repaired.
- Item 6: Indicate if the storage tank access hatches are lockable. If you answered "no", then you should install locks on all storage tank access hatches or doors.
- Item 7: Indicate if the storage tank has been protected from vandalism with a fence or other enclosure. Describe what has been done to protect against vandalism.
- Item 8: Indicate if the storage tank has a drainline that allows the tank to be drained without requiring water to be shut off.

End of Instructions